

## THE LORAS COLLEGE NON-DIATOM FRESHWATER ALGAL CULTURE COLLECTION

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**ABSTRACT.** — In addition to housing a large culture collection of freshwater diatoms, Loras College also maintains ca. 225 cultures representing more than 125 genera of freshwater algae; the majority of these cultures are Chlorophytes and Cyanophytes. Of these cultures, more than 60 taxa are not presently available from the UTEX Culture Collection. These cultures are listed along with those of other taxa in which a recent research interest has been demonstrated.

**RÉSUMÉ.** — Avec une importante collection de diatomées d'eau douce, le Loras College maintient aussi 225 cultures représentant plus de 125 genres d'algues d'eau douce; les Chlorophytes et Cyanophytes constituent la majorité de ceux-ci. Parmi ces cultures plus de 60 taxa ne sont pas disponibles actuellement dans la collection des cultures UTEX. Ces cultures sont répertoriées ici avec celles des autres taxa pour lesquels l'intérêt de recherches récentes a été démontré. (traduit par la rédaction).

**KEY WORDS :** algal cultures, algae, collection, freshwater.

Recent and extensive interest in algal cultures has increased the demand for culture facilities throughout the world. Haines *et al.* (1982) have listed several of the more prominent collections. Notable among these is the Culture Collection of Algae at the University of Texas at Austin (UTEX) (Starr & Zeikus, 1987), particularly because of the large diversity of Chlorophyte and Cyanophyte cultures maintained there.

The Loras College culture collection of freshwater algae presently maintains ca. 500 cultures. Of these cultures, nearly 50 % are diatoms (Czarnecki 1987) and ca. 25 % have been isolated from a single locality, i. e., Lake Itasca State Park, Minnesota, USA (Czarnecki & Ross, 1988). The collection was initiated with approximately 100 cultures during the mid-1970s at Northern Arizona University and expanded while the author was at the Universities of Minnesota, Arkansas and Iowa State, hence the majority of isolates are from these states.

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Cultures are maintained in a variety of biphasic soil-water media, however cultures are sent in the liquid phase only. They are to be considered unicellular; most are of clonal origin. Czarnecki (1987) provides a more detailed protocol of isolation and culture procedures. Additional specific information regarding particular cultures is available on request.

The list of cultures presented below reflects only a small portion of those maintained by the Loras collection and includes only members of the Chlorophyta and Cyanophyta. The majority of those listed are of taxa not presently available from the UTEX collection (Starr & Zeikus, 1987); the others listed (designated by an «\*») are of taxa available through UTEX, but which have recently been investigated and/or may warrant further considerations at the «strain» level (e. g., Ben Amotz *et al.*, 1985; Lang *et al.*, 1987; Nichols & Bold, 1965).

Loras College provides major support for the maintenance and operation of the collection; however a user fee is assessed to help defray expenses. The following charges have been established for cultures obtained from the collection :

**Sponsored research (non-profit institutions and individuals)**

voluntary charge, \$ 10.00/culture  
mandatory charge, \$ 7.50/culture

**Sponsored research (commercial)**

mandatory charge, \$ 20.00/culture

**Unsupported research (individuals)**

voluntary charge, \$ 7.50/culture  
mandatory charge, \$ 4.00/culture.

Orders for cultures are accepted by letter or purchase order only. After cultures are sent, the purchaser will be sent an invoice indicating the appropriate charges. No postal fees are charged for deliveries to the United States, Canada or Mexico; foreign deliveries will be charged 50 % of actual postal costs. All cultures are sent First Class (Air Mail to foreign purchasers) via U. S. Postal Service.

Orders should be addressed to : Dr. David B. Czarnecki, Department of Biology, Box 322, Loras College, Dubuque, IA 52004-0178 USA. Payments should be made in U. S. Currency by check or bank draft to : Loras College Algal Culture Collection, payable to account No. 112274408.

It is not feasible for the collection to provide culture media in excess of that in which cells are shipped. Prolonged maintenance of cultures is therefore the responsibility of the user. Any publications which result from research using cultures obtained from the collection, should refer to the strain used and the collection as the source for the culture material.

#### LIST OF CULTURES

Cultures are listed alphabetically by genus. Each culture is designated by code, taxon, isolator, date of isolation, and locale of initial isolation. Codes preceded by an «\*» indicate the taxon is also available through UTEX.

*Actinotaenium* (Näg.) Teiling

Z-17, *A.* sp., D. Czarnecki, 30VIII85, North Deming Pond, Itasca State Park, MN

*Anabaena* Bory

IS-26, *A. spiroides* var. *crassa* Lemm., D. Czarnecki, 20V82, Borrow Pit, U.S. 30, West Ames, Boone Co. IA.

*Apicystis* Näg. in Kütz

GR-7, *A. brauniana* Näg., D. Czarnecki, V85, Peck's Lake, Yavapai Co., AZ.

*Arthrodesmus* Ehr.

Z-15, *A. convergens* Ehr. ex Ralfs, R. Meier, 25VI85, Lake Itasca, Itasca State Park, MN

Z-32, *A. validus* (West & West) Scott & Grönblad, D. Czarnecki, 27VIII85, North Deming Pond, Itasca State Park, MN.

*Botryococcus* Kütz.

\*CH-21, *B. braunii* Kütz., D. Czarnecki, 8182, Echo Lake bog, Burnett Co., WI.

\*CH-24, *B. braunii* Kütz., D. Czarnecki, 12V182, West Lake Okoboji, Dickinson Co., IA.

\*CH-28, *B. braunii* Kütz., D. Czarnecki, 20VI84, North Deming Pond, Itasca State Park, MN.

\*CH-47, *B. braunii* Kütz., D. Czarnecki, 30VI86, North Deming Pond, Itasca State Park, MN.

*Chaetopora* Schrank

GR-21, *C. elegans* (Roth) Ag., D. Ongaro, 23VI85, LaSalle Creek, Itasca State Park, MN.

*Cbroacoccus* Näg.

IS-37, *C. prescottii* Drouet & Daily in Drouet, D. Czarnecki, 29VIII85, North Deming Pond, Itasca State Park, MN.

*Cosmarium* Corda

Z-30, *C. bisphaericum* Printz, D. Czarnecki, 27VIII85, North Deming Pond, Itasca State Park, MN.

Z-16, *C. subochthodes* Schmidle, K. Ebel, 23V185, LaSalle Creek, Itasca State Park, MN.

Z-39, *C. tenue* Archer, D. Czarnecki, 27VIII85, North Deming Pond, Itasca State Park, MN.

*Cosmocladium* Bréb.

Z-42, *C. constrictum* (Archer) Archer, D. Czarnecki, 25VI86, Beaver Lake, Itasca State Park, MN.

Z-14, *C. pusillum* Hilse, D. Czarnecki, 11VI84, North Deming Pond, Itasca State Park, MN.

*Cylindroscapsa* Reinsch

GR-27, *C. geminella* Wolle, D. Czarnecki, 26V87, Spring Run, Dickinson Co., IA.

*Desmidium* Ag.

Z-41, *D. aptogonium* Bréb. in Bréb. & Godet, D. Czarnecki, 11VI86, North

*Deming Pond, Itasca State Park, MN.*

*Desmonema* Berkeley & Thwaites

IS-18, *D. wrangelii* (Ag.) Born. & Flah., D. Czarnecki, V77, West Fork, Oak Creek Canyon, Coconino Co., AZ.

*Docidium* Bréb.

Z-47, *D. baculum* Bréb. emend. Lund., D. Czarnecki, 6III87, North Deming Pond, Itasca State Park, MN.

*Draparnaldia* Bory

GR-23, *D. glomerata* (Vauch.) Ag., D. Czarnecki, 7VII85, Tank Flow, UM Station, Itasca State Park, MN.

*Euastrum* Ehr.

Z-38, *E. denticulatum* var. *denticulatum* (Kirch.) Gay, D. Czarnecki, 27VIII-85, North Deming Pond, Itasca State Park, MN

Z-18, *E. denticulatum* var. *quadrifarium* Krieger, D. Czarnecki, 27VIII85, North Deming Pond, Itasca State Park, MN

*Eutetramorus* Walton

CH-41, *E. planctonica* (Korch.) Bourr., D. Czarnecki, 8VII85, North Deming Pond, Itasca State Park, MN

*Geminella* Turpin

GR-16, G. sp., D. Czarnecki, 19V82, Des Moines River at Co. E36, Boone Co., IA

*Gomphosphaeria* Kütz.

IS-4, *G. aporina* var. *cordiformis* Wolle, D. Czarnecki, V76, Montezuma Well National Monument, Yavapai Co., AZ

IS-35, *G. lacustris* Chodat, D. Ongaro, 29VI85, South Park Drive Pond, Itasca State Park, MN

*Hyalotheca* Ehr.

Z-45, *H. mucosa* (Mert.) Ehr. ex Ralfs, D. Czarnecki, North Deming Pond, Itasca State Park, MN

*Jobannesbaptista* De. T.

IS-29, *J. pellucida* (Dickie) Taylor & Drouet, D. Czarnecki, 6VIII82, Silver Lake Fen, Dickinson Co., IA

*Kirchneriella* Schmidle

CH-20, *K. lunaris* (Kirch.) Moebius, D. Czarnecki, 11VIII87, North Deming Pond, Itasca State Park, MN

*Lyngbya* Ag.

IS-39, *L. birgei* G. M. Sm., D. Czarnecki, 8VII86, Lake Itasca, Itasca State Park, MN

*Micractinium* Fresenius

CH-33, *M. pusillum* Fresenius, D. Czarnecki, 25VIII82, West Lake Okoboji, Dickinson Co., IA

CH-36, *M. pusillum* Fresenius, D. Czarnecki, 23V85, Frentress Lake, Mississippi River, Jo Daviess Co., IL

*Micrasterias* Ag.

Z-21, *M. crux-melitensis* (Ehr.) Ralfs, D. Czarnecki, 29VIII85, North Deming Pond, Itasca State Park, MN

Z-19, *M. laticeps* Nordst., D. Czarnecki, 27VIII85, North Deming Pond, Itasca State Park, MN

Z-20, *M. papillifera* Bréb. ex Ralfs, D. Czarnecki, North Deming Pond, Itasca State Park, MN

*Neprocytium* Nág.

CH-50, *N. lunatum* W. West, D. Czarnecki, 3VII86, North Deming Pond, Itasca State Park, MN.

*Netrium* (Nág.) Itzsigsohn & Roth

ZZ-05, *N. interruptum* var. *sectum* West & West, D. Czarnecki, 27VIII85, North Deming Pond, Itasca State Park, MN

*Oedogonium* Link

O-4, *O. undulatum* (Bréb.) Braun in De Bary, D. Czarnecki, 6III86, North Deming Pond, Itasca State Park, MN

*Onychonema* Wallisch

Z-46, *O. laeve* var. *micracanthum* Nordst., D. Czarnecki, 19VII86, North Deming Pond, Itasca State Park, MN

*Oscillatoria* Vaucher

IS-38, *O. limnetica* Lemm., D. Czarnecki, 30VI86, North Deming Pond, Itasca State Park, MN

*Paulschultzia* Skuja

\*GR-20, *P. pseudovolvix* (Schulz) Skuja, K. Ebel, 19VII85, Lake Itasca, Itasca State Park, MN

\*GR-24, *P. pseudovolvix* (Schulz) Skuja, D. Czarnecki, 25VI85, Lake Itasca, Itasca State Park, MN

*Pectodictyon* Taft

\*CH-15, *P. cubicum* Taft, D. Czarnecki, 1182, Silver Lake Fen, Dickinson Co., IA

\*CH-31, *P. cubicum* Taft, D. Czarnecki, 4VII82, Des Moines River at Co. E36, Boone Co., IA

*Penium* Bréb.

Z-43, *P. cylindricus* (Ehr.) Bréb. ex Ralfs, D. Czarnecki, 21VI86, North Deming Pond, Itasca State Park, MN

*Plectonema* Thuret

IS-24, *P. wollei* Farlow, D. Czarnecki, 9VII83, Lake Itasca, Itasca State Park, MN

*Pleurotaenium* Nág.

Z-33, *P. coronatum* (Bréb.) Rabenh., D. Czarnecki, 29VIII85, North Deming Pond, Itasca State Park, MN

Z-35, *P. ehrenbergii* f. *relictum* Irénée-Marie, D. Czarnecki, 27VIII85, North Deming Pond, Itasca State Park, MN

Z-22, *P. trabecula* var. *hutchinsonii* (Turner) Croas., D. Czarnecki, 29VIII85,

North Deming Pond, Itasca State Park, MN

*Polyedriopsis* Schmidle

CH-26, *P. spinulosa* Schmidle, D. Czarnecki, 20V82, Des Moines River at Co. E36, Boone Co., IA

*Quadrigula* Printz

CH-16, *Q. closterioides* (Bohlin) Printz, D. Czarnecki, 11IX81, Webb Lake, Burnett Co. WI

CH-44, *Q. closterioides* (Bohlin) Printz, D. Czarnecki, 27VIII85, North Deming Pond, Itasca State Park, MN

*Radiococcus* Schmidle

CH-34, *R. nimbatus* (de Wild.) Schmidle, D. Czarnecki, 25VIII82, West Lake Okoboji, Dickinson Co., IA

*Schizochlamys* Braun in Kütz.

GR-26, *S. gelatinosa* Braun in Kütz., D. Czarnecki, 25VII86, Beaver Lake, Itasca State Park, MN

GR-28, *S. gelatinosa* Braun in Kütz., D. Czarnecki, 11VII86, North Deming Pond, Itasca State Park, MN

*Sorastrum* Kütz.

CH-45, *S. americanum* (Bohlin) Schmidle, D. Czarnecki, 27VIII85, North Deming Pond, Itasca State Park, MN

*Spondylosium* Bréb.

Z-37, *S. pulchrum* (Bail.) Archer, D. Czarnecki, 27VIII85 North Deming Pond, Itasca State Park, MN

*Staurastrum* Meyen

Z-34, *S. arcuatum* Nordst., D. Czarnecki, 29VII85, North Deming Pond, Itasca State Park, MN

Z-24, *S. bieneanum* Rabenh., D. Czarnecki, 27VIII85, North Deming Pond, Itasca State Park, MN

Z-29, *S. brachioprominens* Börg., D. Czarnecki, 27VIII85, North Deming Pond, Itasca State Park, MN

Z-28, *S. cornutum* Archer, D. Czarnecki, 27VIII85, North Deming Pond, Itasca State Park, MN

Z-27, *S. dilatatum* (Ehr.) Ralfs, D. Czarnecki, 27VIII85, North Deming Pond, Itasca State Park, MN

Z-31, *S. johnsonii* var. *depauperatum* G. M. Sm., D. Czarnecki, 27-VIII85, North Deming Pond, Itasca State Park, MN

Z-48, *S. manfeldtii* var. *parvum* Mess., D. Czarnecki, 13VIII87, Lake Itasca, Itasca State Park, MN

Z-40, *S. ophiura* Lundell, D. Czarnecki, 27VIII85, North Deming Pond, Itasca State Park, MN

*Tetraedron* Kütz.

CH-53, *T. limneticum* Borge, M. Edlund, 2VII86, Lake Itasca, Itasca State Park, MN

CH-52, *T. minima* (Braun) Hansgirg, M. Edlund, 8VII86, North Deming Pond, Itasca State Park, MN

**Tetraspora** Link

GR-19, *T. lubrica* (Roth) Ag., D. Czarnecki, Little Menominee River, Jo Daviess Co., IL

**Treubaria** Bernard

CH-35, *T. setigerum* (Archer) G. M. Sm., D. Czarnecki, West Lake Okoboji, Dickinson Co., IA

**Trichosarcina** Nichols & Bold

GR-17, *T. polymorpha* Nichols & Bold, M. Basterricha, 27VI82, Spring Run, Dickinson Co., IA

**Xanthidium** Ehr.

Z-36, *X. antilopaeum* var. *oligacanthum* Schmidle, D. Czarnecki, 27VIII85, North Deming Pond, Itasca State Park, MN

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